

REMARKS

Claims 10-27 are in the application. Claims 16 and 21-27 are amended to overcome rejections under 35 USC 112, as discussed in further detail below.

The present Office Action finally rejecting the claims, dated May 12, 2003, is a replacement of an earlier Office Action finally rejecting the claims, dated March 13, 2003. On May 2, 2003, the undersigned called the Examiner regarding the earlier final rejection, because no mention was made of the disposition of Claims 10-15, and the undersigned wanted to determine their status. The Examiner indicated that she had inadvertently omitted including them in the Office Action, and stated that she would issue a supplemental Office Action, including the status of Claims 10-15 and re-starting the period for response. This Amendment is in response to that supplemental Office Action, dated May 12, 2003.

Claims 16-27 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The grounds of rejection are dealt with serially.

(A) The Examiner objects to the recitation in Claims 16 and 22 that the second reactive component is "selected from the group consisting of polyol, polyvinyl alcohol, and base catalysts", and considers the scope of the claims to be unclear in what type of polymer is formed where the reactive monomer is isocyanate and the second component is a base catalyst.

Claims 16 and 22 are amended to recite that the second reactive component is --selected from the group consisting of polyols and polyvinyl alcohols, plus a base catalyst--, as had previously been done with Claim 10.

(B) The Examiner objects to the lack of antecedent basis in Claims 20 and 26 for the term "said monomer".

Claims 16 and 22 are amended to provide the requisite antecedent basis.

(C) The Examiner objects to the lack of antecedent basis in Claims 21 and 27 for the term "said concentration".

Claims 21 and 27 are amended to depend from Claims 20 and 26, respectively.

(D) The Examiner objects to the recitation in Claims 23-27 as being drawn to a method, whereas independent Claim 22, from which these claims depend, directly or indirectly, is drawn to a combination.

Claims 23-27 are amended to delete "method" and insert in place thereof --combination--.

Reconsideration of the rejection of Claims 16-27, as amended, under 35 USC 112, second paragraph, is respectfully requested.

Claims 10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al (U.S. 5,640,187) in view of Lawrence et al (U.S. 6,280,027) and Thompson et al (U.S. 6,341,856).

The references and the rejected claims are discussed in Applicants' prior Amendments filed June 26, 2002, and December 20, 2002, and the remarks and arguments made therein obtain here as well.

Applicants submit herewith a Declaration under 37 CFR 1.132, which provides data showing the superiority of the two-part fixer system over the one-part fixer system. Comparative data is presented regarding optical density, waterfastness, acid smearfastness, and alkaline smearfastness, comparing a water-based one-part fixer composition with a two-part fixer composition (black inks). Comparative data is also presented regarding optical density, waterfastness, alkaline smearfastness, and smudgefastness, comparing a solvent-based one-part fixer composition with a two-part fixer composition (cyan, magenta, and yellow inks).

Of the total of 58 comparisons, involving a number of different print media, 18 comparisons evidenced essentially equivalent results, while 40 evidenced superior results for the two-part fixer system. In many of the latter instances, the differences were not so much in degree as in kind. That is to say, a difference in, for example, alkaline smearfastness (Table IV) of a value of 1 (two-part fixer system) vs. a value of 2 (one-part fixer system) might be considered to be a difference in degree. However, a value of 2 (two-part fixer system) vs. a value of 20 (one-part fixer system) clearly is a difference in degree. There are many such differences in degree shown in Tables IV and V of the Declaration.

The Examiner agrees that Kashiwazaki et al and Lawrence et al do not disclose two-part fixer systems (OA, p. 9).

The Examiner argues that Thompson et al appears to disclose a two-part system (OA, p. 9). However, Thompson et al disclose an ink that includes a reactive species capable of being crosslinked by a second species to bond/crosslink the coloring agent onto a final substrate. However, fixation of the ink onto the substrate is accomplished by reacting the agents in the ink, removing blocking agent(s) by the application of energy, such as heat and/or pressure (Col. 4, lines 30-33).

Thus, no fixation occurs when the reaction takes place. While the ink and reactant may be printed on paper, no fixation occurs until the image is exposed to heat and/or pressure. Such fixation occurs after transfer of the image to the final substrate, which is preferably a textile. In direct contrast, Applicants' two-component fixative system results in fixing of the printed ink upon printing the second of the two: ink and fixative; for that is the function of a fixative. The Examiner's attention is respectfully directed to step (d) of Applicants' Claim 16. No additional energy (heat and/or pressure) is required to fix the ink.

Accordingly, the combination of references fails to disclose or even remotely suggest the underprinting or overcoating or both of an ink with a two-part fixer system to thereby directly fix the ink on paper.

Reconsideration of the rejection of Claims 10 and 14-15 under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al is respectfully requested.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al as applied to Claims 10 and 14-15 above, and further in view of Kurabayashi et al (U.S. 5,985,975).

The references and the rejected claims are discussed in Applicants' prior Amendments filed June 26, 2002, and December 20, 2002, and the remarks and arguments made therein obtain here as well.

The submission of the Declaration under 37 CFR 1.132 and the arguments made above regarding Kashiwazaki et al, Lawrence et al, and Thompson et al obtain here as well. Kurabayashi et al add nothing to the combination to render Applicants' claims obvious.

Reconsideration of the rejection of Claims 11-13 under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al and further in view of Kurabayashi et al is respectfully requested.

Claims 10 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al (U.S. 5,640,187) in view of Lawrence et al (U.S. 6,280,027) and Thompson et al (U.S. 6,341,856).

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The submission of the Declaration under 37 CFR 1.132 and the arguments made above regarding Kashiwazaki et al, Lawrence et al, and Thompson et al obtain here as well. The fact that this is a slightly different ground of rejection is immaterial, in view of the fact that Kashiwazaki et al and Lawrence et al are directed to *one-part* systems and Thompson et al are silent on this.

Reconsideration of the rejection of Claims 10 and 14-15 under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al is respectfully requested.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al as applied to claims 10 and 14-15 above, and further in view of Kurabayashi et al. (U.S. 5,985,975).

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Reconsideration of the rejection of Claims 11-13 under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al and further in view of Kurabayashi et al is respectfully requested.

Claims 16, 20-22, and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al (U.S. 5,640,187) in view of Lawrence et al (U.S. 6,280,027) and Thompson et al (U.S. 6,341,856).

The references are discussed above.

Independent Claim 16 is directed to a method of printing on a print media, including printing ink on the print media and printing a fixative on the print media, in either order, the method comprising:

- (a) providing at least one cartridge containing at least one fixative, the fixative(s) including at least one first reactive component selected from the group consisting of iso-cyanate monomers and epoxy-terminated oligomers in a vehicle;

- (b) providing at least one cartridge containing at least one ink-jet ink, the ink-jet ink(s) including at least one second reactive component selected from the group consisting of polyols and polyvinyl alcohols, plus a base catalyst;

- (c) in either order, printing the fixative(s) and the ink(s) on the print media; and

- (d) allowing reaction to proceed between the first reactive component(s) and the second reactive component(s) on the print media to form a polymer, the polymer having a glass transition temperature within a range of -50°C to +100°C and a melting temperature within a range of 30°C to 150°C to thereby fix the ink-jet ink(s) on the print media.

Independent Claim 22 is directed to a combination of (a) at least one fixative, the fixative(s) including at least one first reactive component selected from the group consisting of iso-cyanate monomers and epoxy-terminated oligomers in a vehicle; and (b) at least one ink-jet ink, the ink-jet ink(s) including at least one second reactive component selected from the group consisting of polyols and polyvinyl alcohols, plus a base catalyst, the fixative(s) and the ink-jet ink(s) reacting on a print media to form a polymer, the polymer having a glass transition temperature within a range of -50°C to +100°C and a melting temperature within a range of 30°C to 150°C to thereby fix the ink-jet ink(s) on the print media.

The Examiner essentially raises the same arguments as above in rejecting these new claims.

Applicants contend that the submission of the Declaration under 37 CFR 1.132 and the arguments made above overcome the rejection.

Reconsideration of the rejection of Claims 16, 20-22, and 26-27, as amended, under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al is respectfully requested.

Claims 17-19 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al as applied to Claims 16, 20-22, and 26-27, and further in view of Kurabayashi et al. (U.S. 5,985,975).

Applicants contend that the submission of the Declaration under 37 CFR 1.132 and the arguments made above overcome the rejection.

Reconsideration of the rejection of Claims 17-19 and 23-25, as amended, under 35 U.S.C. 103(a) as being unpatentable over Kashiwazaki et al in view of Lawrence et al and Thompson et al and further in view of Kurabayashi et al is respectfully requested.

The submission of the Declaration under 37 CFR 1.132 and the foregoing amendments and arguments are submitted to place the application in condition for allowance. The Examiner is respectfully requested to take such action. If the Examiner has any questions, she is invited to contact the undersigned at the below-listed telephone number. HOWEVER, ALL WRITTEN COMMUNICATIONS SHOULD CONTINUE TO BE DIRECTED TO: IP ADMINISTRATION, LEGAL DEPARTMENT, M/S 35, HEWLETT-PACKARD COMPANY, P.O. BOX 272400, FORT COLLINS, CO 80527-2400.

Respectfully submitted,

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